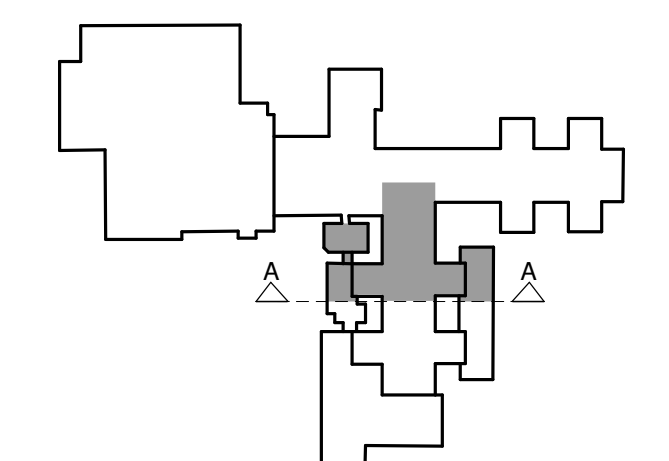


1 EXISTING TO REMAIN.

- 1 EXISTING TO REMAIN.
- 2 P.C. SHALL MAKE 0.75" O2, 0.5" MA & 0.75" MV MEDICAL GAS PIPING CONNECTIONS TO
- 3 NEW PREFABRICATED BEDSIDE PATIENT UNIT (PROVIDED BY OTHERS). REFER TO
- 4 DETAIL S. ON ARCHITECTURAL SHEET 137-A602 AND SELECTED MODEL FOR EXACT
- 5 CONNECTION LOCATIONS, CONNECTIONS, AND REQUIREMENTS. COORDINATE WORK
- 6 WITH DIVISION 26 CONTRACTOR.
- 7
- 8 MAINTAIN EXISTING ZONE VALVE CABINET. REPLACE EXISTING COVER PLATE TO
- 9 REFLECT NEW ROOM(S) BEING SERVED.
- 10
- 11 NEW ZONE VALVE CABINET.
- 12
- 13 TYPICAL PATIENT LIFT. COORDINATE PIPING WITH PATIENT LIFT AND ASSOCIATED
- 14 STRUCTURAL MEMBERS.
- 15
- 16 RELOCATED EXISTING ZONE VALVE CABINET. REPLACE EXISTING COVER PLATE TO
- 17 REFLECT NEW ROOM(S) BEING SERVED.
- 18
- 19 NEW 1.5" MN. EXISTING 0.75" MA & 0.75" O2 MEDICAL GAS RISERS FROM PIPE BASEMENT
- 20 BELOW.
- 21
- 22 P.C. SHALL MAKE 0.75" O2, 0.75" MA & 0.75" MV MEDICAL GAS PIPING CONNECTIONS TO
- 23 FACILITATE VENTILATOR CONNECTIONS TO NEW PREFABRICATED BEDSIDE PATIENT
- 24 UNIT (PROVIDED BY OTHERS). REFER TO DETAIL S. ON ARCHITECTURAL SHEET 137-A602
- 25 AND SELECTED MODEL FOR EXACT CONNECTION LOCATIONS, CONNECTIONS, AND
- 26 REQUIREMENTS. COORDINATE WORK WITH DIVISION 26 CONTRACTOR.



KEYPLAN

Scale: N.T.S.

Scale: 1/8" = 1'-0"

[illegible]

 **Heapy Engineering**
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Heapy Project No.: 2011-04008

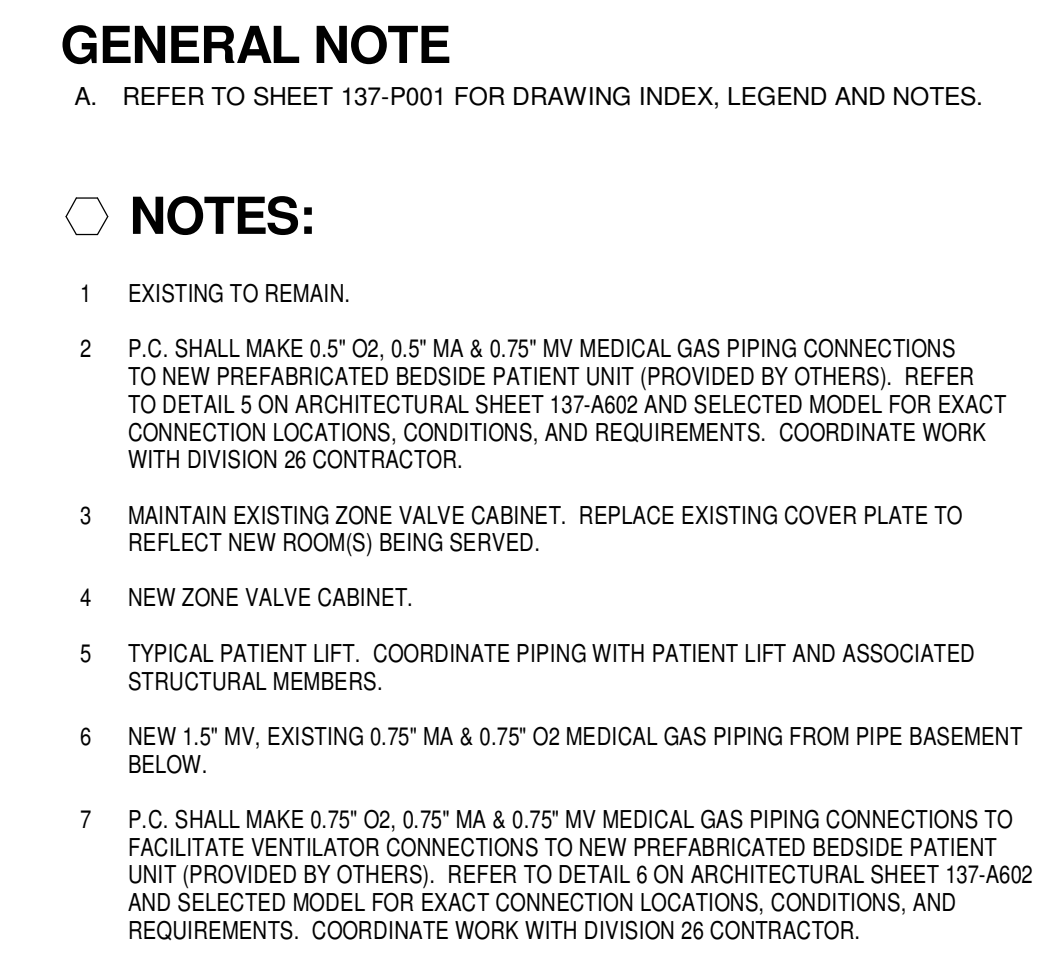
524 FERNWOOD DRIVE
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Approved: Project Director

Date	04/26/2013
Project No.	590-911
RDC/JPA Project No.	11004.00
Drawing Number	137-P105
Dwg.	84 of 135

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Veterans Affairs

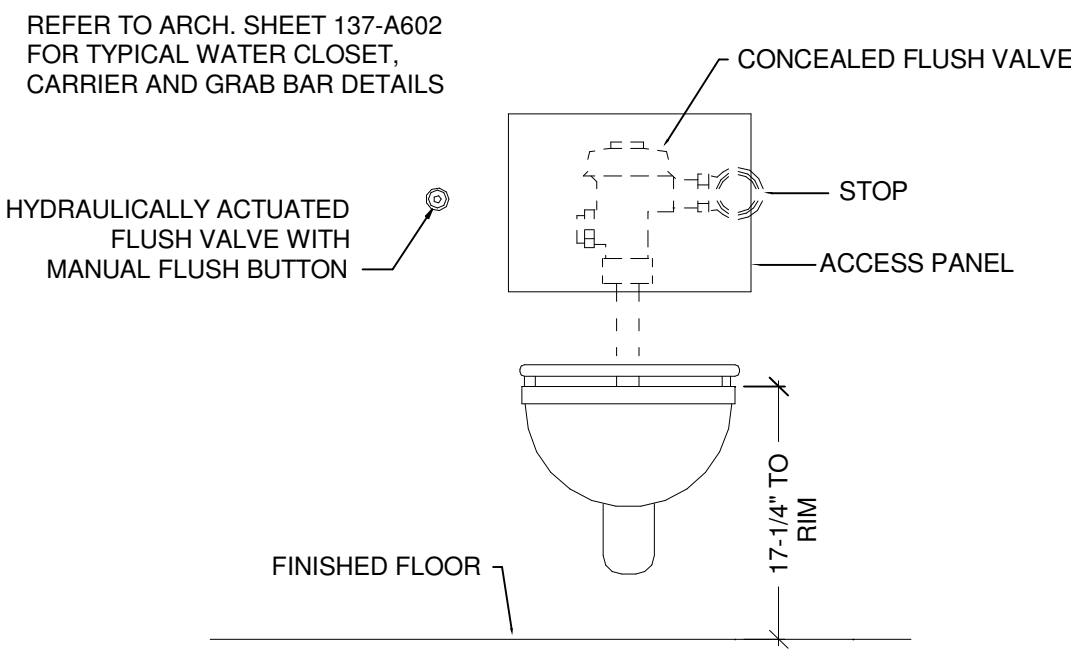


Scale: 1/8" = 1'-0"

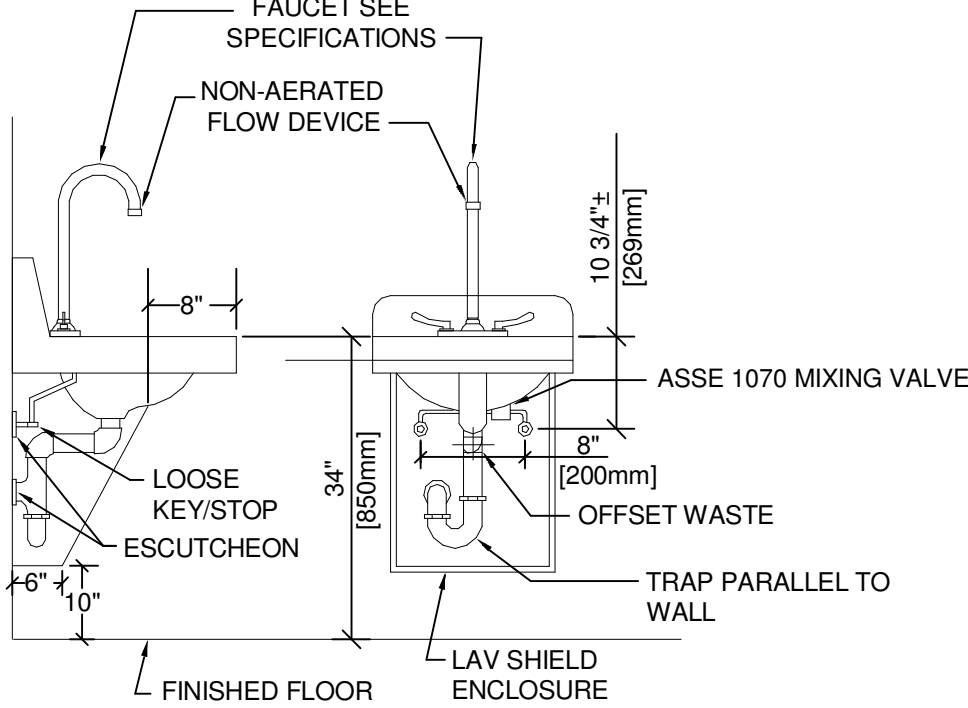


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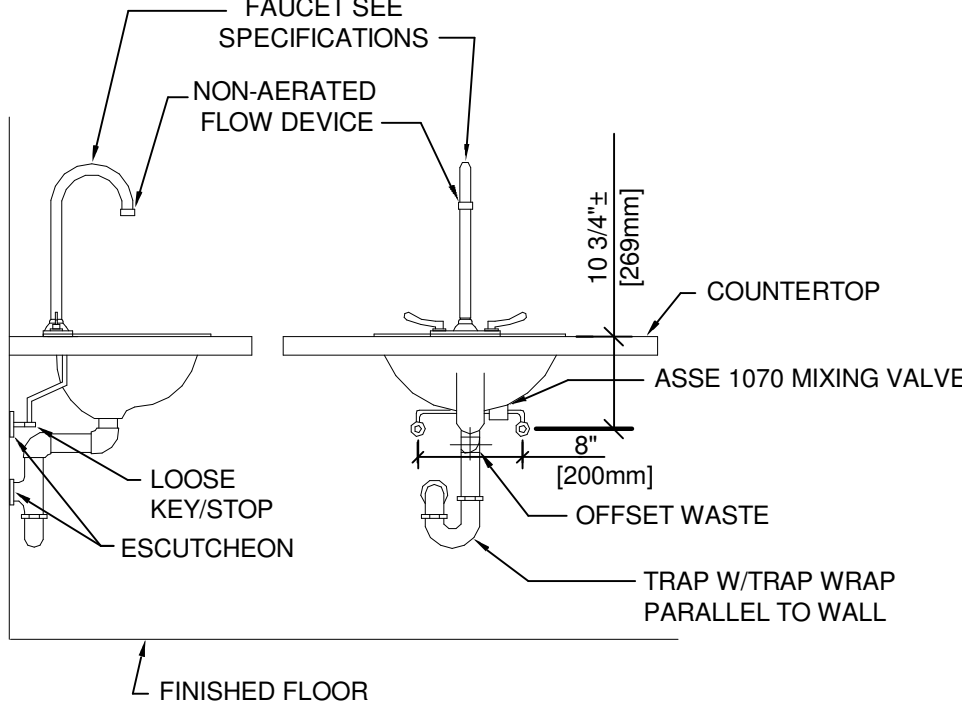
three inches = one foot
one and one half inches = one foot
one inch = one foot
one quarter inch = one foot
three quarters inch = one foot
one half inch = one foot
one eighth inch = one foot
one eighth inch = one foot



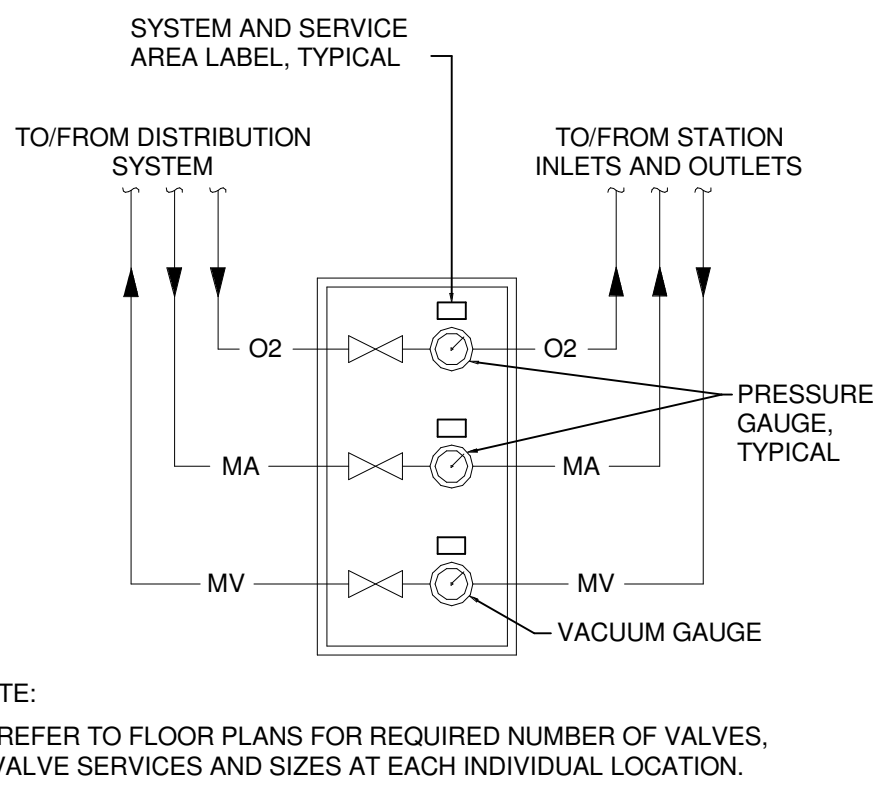
P107 WATER CLOSET
SCALE: NONE



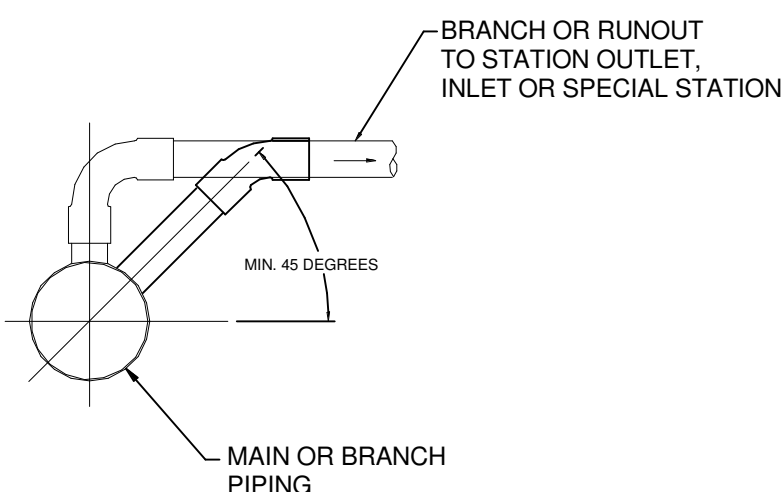
P418 WALL HUNG LAVATORY
SCALE: NONE



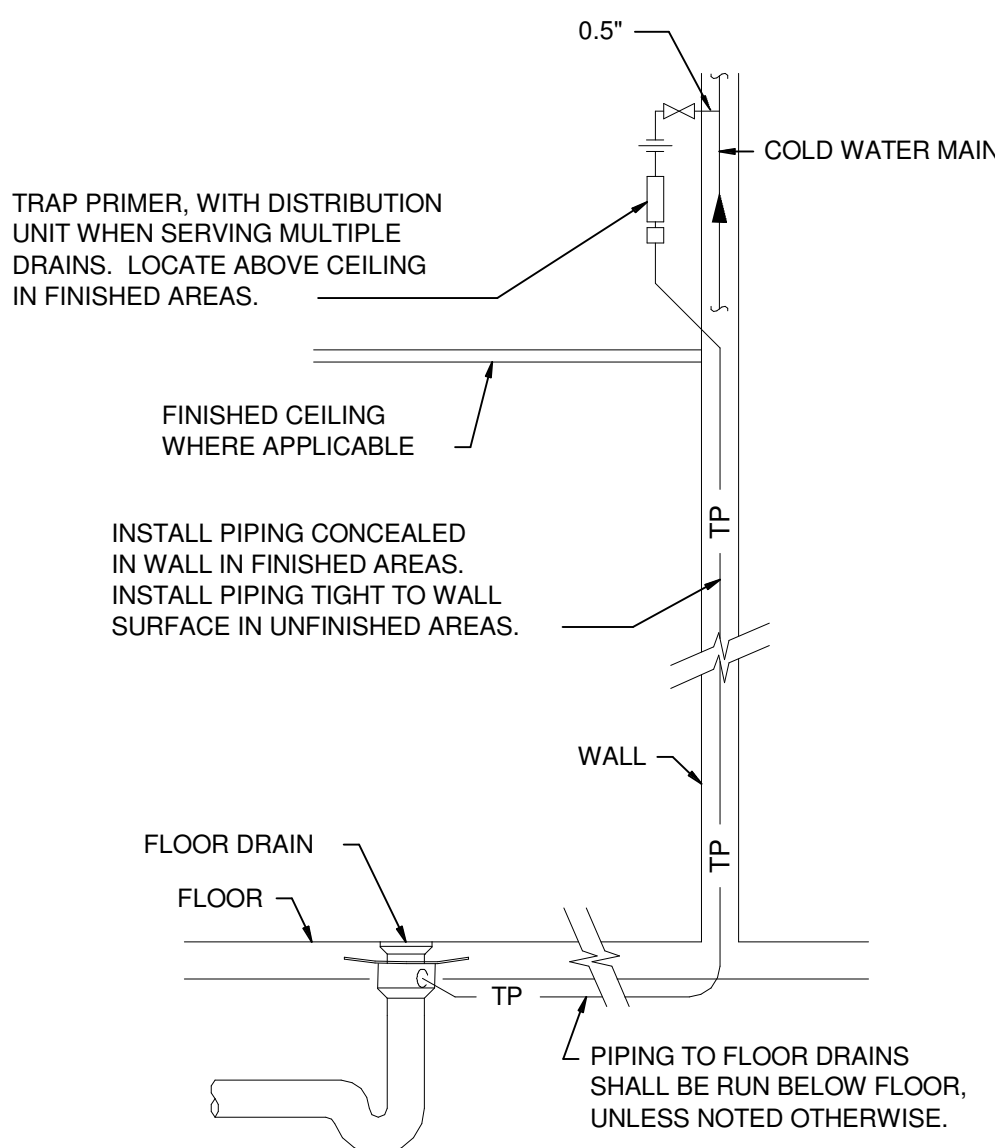
P413 COUNTERTOP LAVATORY
SCALE: NONE



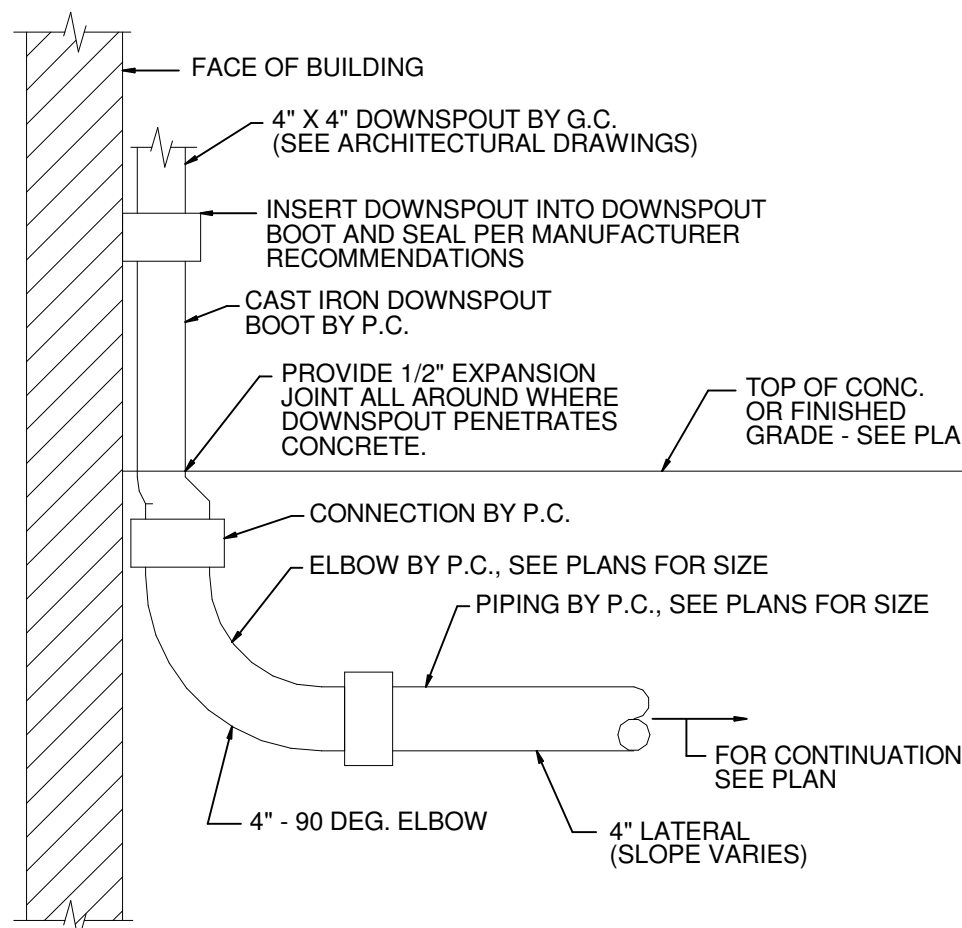
MEDICAL GAS ZONE VALVE CABINET
SCALE: NONE



MEDICAL GAS BRANCH TAKEOFF PIPING
SCALE: NONE

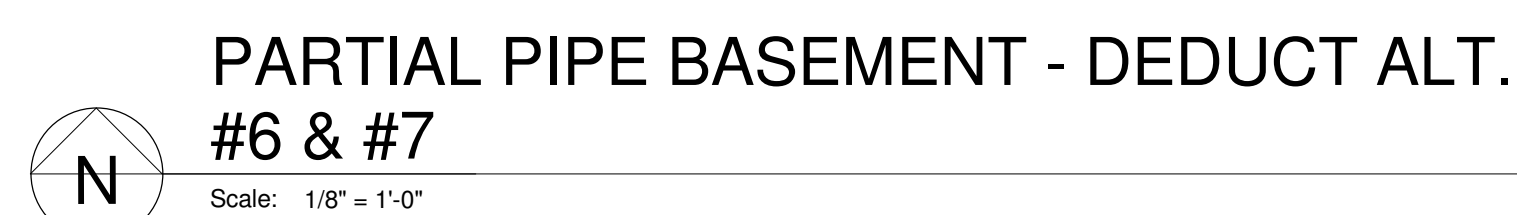


TRAP PRIMER
SCALE: NONE



ROOF DRAIN DOWNSPOUT CONNECTION
SCALE: NONE

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1. EXISTING TO REMAIN.
2. BOX MOUNTED TRANSFORMER LOCATED ABOVE CEILING TO CONTROL SENSOR OPERATED FAUCET ON KITCHEN/SJ BELOW. 120V - 1PH WIRING WILL BE LOCATED IN A WIRING BOX ABOVE THE CEILING BY THE E.C. A 0.75" CONDUT FOR LOW VOLTAGE WIRING STUBBED ABOVE THE CEILING AND EXTENDED DOWN TO AN ELECTRICAL WALL BOX LOCATED BELOW EACH LAVATORY WILL BE PROVIDED BY THE E.C. TRANSFORMER AND LOW VOLTAGE WIRING SHALL BE BY THE P.C. THE P.C. SHALL COORDINATE ALL WORK WITH THE E.C.
3. TRAP PRIMER. REFER TO DETAIL F137-P601.
4. EXTEND NEW 2" DOW & 1 DHW SUPPLY RISERS FROM PIPE BASEMENT BELOW TO ABOVE FIRST FLOOR CEILING TO SERVE RENOVATED AREA AS INDICATED.
5. EXTEND NEW 0.75" DHWR PIPING FROM ABOVE FIRST FLOOR CEILING TO PIPE BASEMENT BELOW.
6. TYPICAL PATIENT LIFT. COORDINATE PIPING WITH PATIENT LIFT AND ASSOCIATED STRUCTURAL MEMBERS.
7. EXTEND NEW 2" DOW, 1.25" DHW & 0.75" DHWR SUPPLY RISERS FROM PIPE BASEMENT BELOW TO ABOVE FIRST FLOOR CEILING TO SERVE RENOVATED AREA AS INDICATED.
8. P.C. SHALL MAKE 0.5" O2 .05" O2 .05" M & 0.75" MV MEDICAL GAS PIPING CONNECTIONS TO NEW PREFABRICATED BEDSIDE PATIENT UNIT (PROVIDED BY OTHERS). REFER TO SHEET 13P7-P105 FOR MEDICAL GAS PIPING PLAN. REFER TO DETAIL ON ARCHITECTURAL SCHEDULES SHEET 13P7-A002 AND TO THE MODEL FOR EXHAUST FAN CONNECTIONS, CONDITIONS AND REQUIREMENTS. COORDINATE WORK WITH DIVISION 26 CONTRACTOR.

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- 1 PROVIDE SADDLE SUPPORTS AND ANGLE FRAME AND SUPPORT HEAT EXCHANGER OFF FLOOR.
- 2 F & T TRAP ASSEMBLY. REFER TO DETAIL ON SHEET 137-M504 AND STEAM SYSTEM SCHEMATIC ON SHEET 137-M603.
- 3 PROVIDE AN ANGLE FRAME TO SUPPORT PUMP AND PIPING OFF FLOOR. PUMPS SHALL BE STACKED VERTICALLY. REFER TO HOT WATER SYSTEM SCHEMATIC ON SHEET 137-M603.
- 4 MAINTAIN CLEAR AREA FOR CONVERTER TUBE PULL SPACE.
- 5 NEW DCC CONTROL PANEL. REFER TO SPECIFICATION SECTION 23 09 10 AND SHEET 137-M702 FOR SPECIFIC REQUIREMENTS.
- 6 REFER TO PUMP DETAIL ON SHEET 137-M503 FOR PUMP VALVING AND ACCESSORIES.
- 7 EMERGENCY BYPASS PIPE TO ALLOW NEW CHILLED WATER PUMPS TO SERVE EXISTING ROOFTOP UNITS AH1 AND AH2 IN 137C MAINT EXISTING CHILLED WATER PUMP SERVING THESE UNITS FAIL OR BE TAKEN OUT OF SERVICE FOR MAINTENANCE.
- 8 EMERGENCY BYPASS ISOLATION VALVE TO BE NORMALLY CLOSED. NO VALVE MUST BE MANUALLY OPEN PRIOR TO OPERATING BOTH PUMPS.
- 9 EXISTING AIR SEPARATOR TO REMAIN.
- 10 EXISTING EXPANSION TANK TO REMAIN.
- 11 EXISTING PIPING TO REMAIN.
- 12 EXISTING PUMP TO REMAIN.
- 13 EXISTING CHILLED WATER PUMP SERVING AREA "C" ROOFTOP UNITS A1 AND A2 TO REMAIN.
- 14 PIPING DOWN TO FIRST FLOOR. PROVIDE MANUAL AIR VENT AT PIPE DROP AND BUTTERFLY VALVE IN VERTICAL PIPE. REFER TO SHEET 137-M701.
- 15 INSTALL TOP OF CHEMICAL POT FEEDER TANK NO MORE THAN 3'-0" ABOVE FLOOR.
- 16 PROVIDE ROOM FOR INSULATING FILTER AND PIPING.
- 17 PROVIDE 5" HIGH CONCRETE BASE.
- 18 EXTEND AND RECONNECT MAKE UP WATER PIPE TO EXISTING HEATING PUMP WATER FEED WATER ASSEMBLY.
- 19 PUMP VFD.



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Approved: Project Director

Date	4/26/2013
Project No.	590-9111
RDC/JPA Project No.	11004.00
Drawing Number	137-M301
Dwg. No.	91 of 135



Department of
Veterans Affairs



Scale: N.T.S.



- 1 PROVIDE SADDLE SUPPORTS AND ANGLE FRAME AND SUPPORT HEAT EXCHANGER OFF FLOOR.
- 2 F & T TRAP ASSEMBLY. REFER TO DETAIL ON SHEET 137-M504 AND STEAM SYSTEM SCHEMATIC ON SHEET 137-M603.
- 3 PROVIDE AN ANGLE FRAME TO SUPPORT PUMP AND PIPING OFF FLOOR. PUMPS SHALL BE STACKED VERTICALLY. REFER TO HOT WATER SYSTEM SCHEMATIC ON SHEET 137-M603.
- 4 MAINTAIN CLEAR AREA FOR CONVERTER TUBE PULL SPACE.
- 5 NEW DDC CONTROL PANEL. REFER TO SPECIFICATION SECTION 29.09.23 AND SHEET 137-M702 FOR SPECIFIC REQUIREMENTS.
- 6 EXISTING SHELL & TUBE HEAT EXCHANGER TO REMAIN.
- 7 REMOVE EXISTING SHELL AND TUBE HEAT EXCHANGER AND ASSOCIATED PIPING, VALVES, TRAPS, CONTROLS, ETC.
- 8 REMOVE EXISTING EXPANSION TANK AND ASSOCIATED PIPING, ETC.
- 9 EXISTING AIR SEPARATOR TO REMAIN.
- 10 EXISTING EXPANSION TANK TO REMAIN.
- 11 EXISTING PIPING TO REMAIN.
- 12 PUMP WORK SHOWN IN THIS AREA SHALL BE COMPLETED PRIOR TO REMOVAL OF HOT WATER-HEATING SYSTEM SERVING AREA C. HEATING HOT WATER SYSTEM FOR 137B WILL PROVIDE TEMPORARY CAPACITY FOR 137C WHILE THE HEATING HOT WATER SYSTEM FOR 137C IS BEING INSTALLED. THIS WORK SHALL BE PERFORMED DURING THE SUMMER. COORDINATE ALL SHUTDOWNS WITH COTR. REFER TO ISOMETRIC ON THIS SHEET FOR ADDITIONAL DETAIL. IN THIS AREA.
- 13 REMOVE EXISTING PIPING AND ASSOCIATED VALVES, SUPPORTS, ETC.
- 14 REMOVE EXISTING PIPING BACK TO THIS POINT AND CAP.
- 15 REMOVE PIPING BACK TO THIS POINT FOR RECONNECTION IN NEW WORK.
- 16 REMOVE EXISTING AIR SEPARATOR AND ASSOCIATED PIPING, ETC.
- 17 REMOVE EXISTING HEATING HOT WATER PUMP AND ASSOCIATED PIPING, CONTROLS, ETC.
- 18 REMOVE EXISTING CHEMICAL POT FEEDER AND ASSOCIATED PIPING, ETC.
- 19 EXISTING PUMP TO REMAIN.
- 20 EXISTING CHILLER TO REMAIN.
- 21 PIPING DOWN TO FIRST FLOOR. PROVIDE MANUAL AIR VENT AT PIPE DROP AND BUTTERFLY VALVE IN VERTICAL PIPE. REFER TO SHEET 137-MP101.
- 22 INSTALL TOP OF CHEMICAL POT FEEDER TANK NO MORE THAN 3'-0" ABOVE FLOOR.
- 23 PROVIDE ROOM FOR INSULATING FILTER AND PIPING.
- 24 EXISTING PIPE DROPS AND CONNECTS TO CHILLER.
- 25 PROVIDE 5" HIGH CONCRETE BASE.
- 26 EXTEND AND RECONNECT MAKE UP WATER PIPE TO EXISTING HEATING HOT WATER MAKE UP WATER ASSEMBLY.
- 27 CONNECT TO VALVED FLANGES (INSTALLED DURING TEMPORARY CONSTRUCTION PHASE) TO SERVICE EXISTING 137C HEATING HOT WATER MAINS FROM NEW HEATING HOT WATER SYSTEM.
- 28 PROVIDE 3" HIGH CONCRETE CURB AROUND PIPING THRU FLOOR.
- 29 EXISTING CHILLED WATER PUMP SERVING AREA "C" ROOFTOP UNITS AH1 AND AH2.
- 30 EXISTING BYPASS PIPE TO ALLOW NEW CHILLED WATER PUMPS TO SERVICE EXISTING ROOFTOP UNITS AH1 AND AH2 IN 137C. SHOULD EXISTING CHILLED WATER PUMP SERVE THESE UNITS LOSE OR BE TAKEN OUT OF SERVICE FOR MAINTENANCE.
- 31 EMERGENCY BYPASS ISOLATION VALVE TO BE NORMALLY CLOSED. NOTE: VALVE MUST BE MANUALLY OPENED PRIOR TO OPERATING BOTH PUMPS.
- 32 CONNECT TO EXISTING PIPE CAP.
- 33 EXISTING PIPE CAP.
- 34 EXISTING CHEMICAL POT FEEDER TO REMAIN.
- 35 EXISTING COMPRESSOR UNIT TO REMAIN.
- 36 REFER TO PUMP DETAIL ON SHEET 137-M503 FOR PUMP VALVING AND ACCESSORIES.
- 37 AT COMPLETION OF PROJECT, BYPASS PIPING SHALL REMAIN TO ALLOW TEMPORARY HEATING BETWEEN 137B AND 137C SYSTEMS. BYPASS VALVES SHALL BE REMAINED EXCEPT WHEN USED FOR TEMPORARY HEATING BETWEEN SYSTEMS.
- 38 SHUT OFF VALVE.



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Heapy Project No.: 2011-04008

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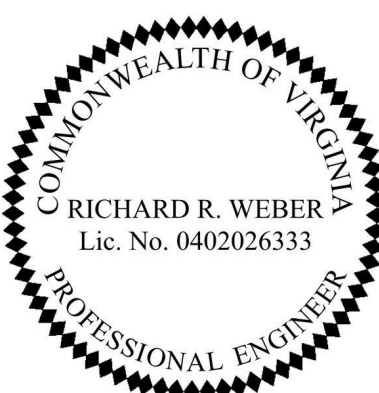
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Department of
Veterans Affairs



- 1 MOUNT UNIT HEATER TO WALL OR STRUCTURE PER MANUFACTURERS RECOMMENDATIONS.
- 2 PROVIDE TYPE B FIRE DAMPER AT FLOOR PENETRATION. REFER TO DETAIL ON SHEET 137-M502. REFER TO SHEET 137-MH01 FOR DUCT CONTINUATION.
- 3 PROVIDE TYPE B FIRE DAMPER AT FLOOR PENETRATION. REFER TO DETAIL ON SHEET 137-M502. REFER TO SHEET 137-MH02 FOR DUCT CONTINUATION.
- 4 2" CHILLED WATER SUPPLY AND RETURN FROM BELOW. REFER TO SHEET 137-MP102 FOR CONTINUATION.
- 5 1.25" HOT WATER SUPPLY AND RETURN FROM BELOW. REFER TO SHEET 137-MP102 FOR CONTINUATION.
- 6 OUTSIDE AIR INTAKE LOUVER.
- 7 RELIEF AIR LOUVER.
- 8 UNIT SERVICE ACCESS SPACE FOR COIL PULL.
- 9 UNIT TO BE MOUNTED ON 5" CONCRETE EQUIPMENT PAD PER DETAIL ON SHEET 137-M504.
- 10 AUTOMATIC 2-POSITION RELIEF AIR DAMPER. REFER TO CONTROLS ON SHEET 137-MH01.
- 11 LOUVER BY G.C. APPROXIMATE SIZE LISTED. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT SIZE AND LOCATION.
- 12 TRANSITION DUCTWORK TO FULL SIZE OF EQUIPMENT CONNECTION.
- 13 PROVIDE NEW DDC CONTROL PANEL. REFER TO SHEET 137/M701 AND SPECIFICATION 23 09 23 FOR ADDITIONAL INFORMATION.
- 14 PROVIDE NEW BUILDING NETWORK AREA CONTROLLER. REFER TO SPECIFICATION 23 09 23 FOR ADDITIONAL INFORMATION.
- 15 EXTEND PULL SIZE DRAIN PIPE TO FLOOR DRAIN. REFER TO AIR HANDLING UNIT TRAP DETAIL ON SHEET 137-M503.
- 16 DUCT MOUNTED SMOKE DETECTOR.
- 17 2" THICK DOUBLE WALL INSULATED PLENUM CASING.
- 18 PROVIDE 3" HIGH CONCRETE CURB BELOW PLENUM CASING.
- 19 18"x60" DOUBLE WALL INSULATED ACCESS DOWN WITH VISION WINDOW.
- 20 DUCT FULL SIZE OF EQUIPMENT CONNECTION.
- 21 PROVIDE FLEXIBLE DUCT CONNECTOR PER DETAIL ON SHEET 137-M501.
- 22 PROVIDE 3" CONCRETE CURB PER DUCT RISER SUPPORTS DETAIL ON SHEET 137-M502.
- 23 PROVIDE DDC DIFFERENTIAL PRESSURE SENSOR BETWEEN THE CHILLED WATER SUPPLY AND RETURN PIPING AT THIS LOCATION.
- 24 PIPE COILS PER DETAILS ON SHEET 137-M503.
- 25 4" CHILLED WATER SUPPLY AND RETURN FROM BELOW. REFER TO SHEET 137-MP102 FOR CONTINUATION.
- 26 2" HOT WATER SUPPLY AND RETURN FROM BELOW. REFER TO SHEET 137-MP102 FOR CONTINUATION.
- 27 PROVIDE DDC DIFFERENTIAL PRESSURE SENSOR BETWEEN THE HOT WATER SUPPLY AND RETURN PIPING AT THIS LOCATION.
- 28 PROVIDE MANUAL AIR VENT IN RPT DROP.
- 29 PROVIDE 3" HIGH CONCRETE CURB AROUND PIPING THROUGH FLOOR.
- 30 CONSTRUCT DUCT IN REMOVABLE SECTIONS.
- 31 SUPPORT DUCT OFF FLOOR.

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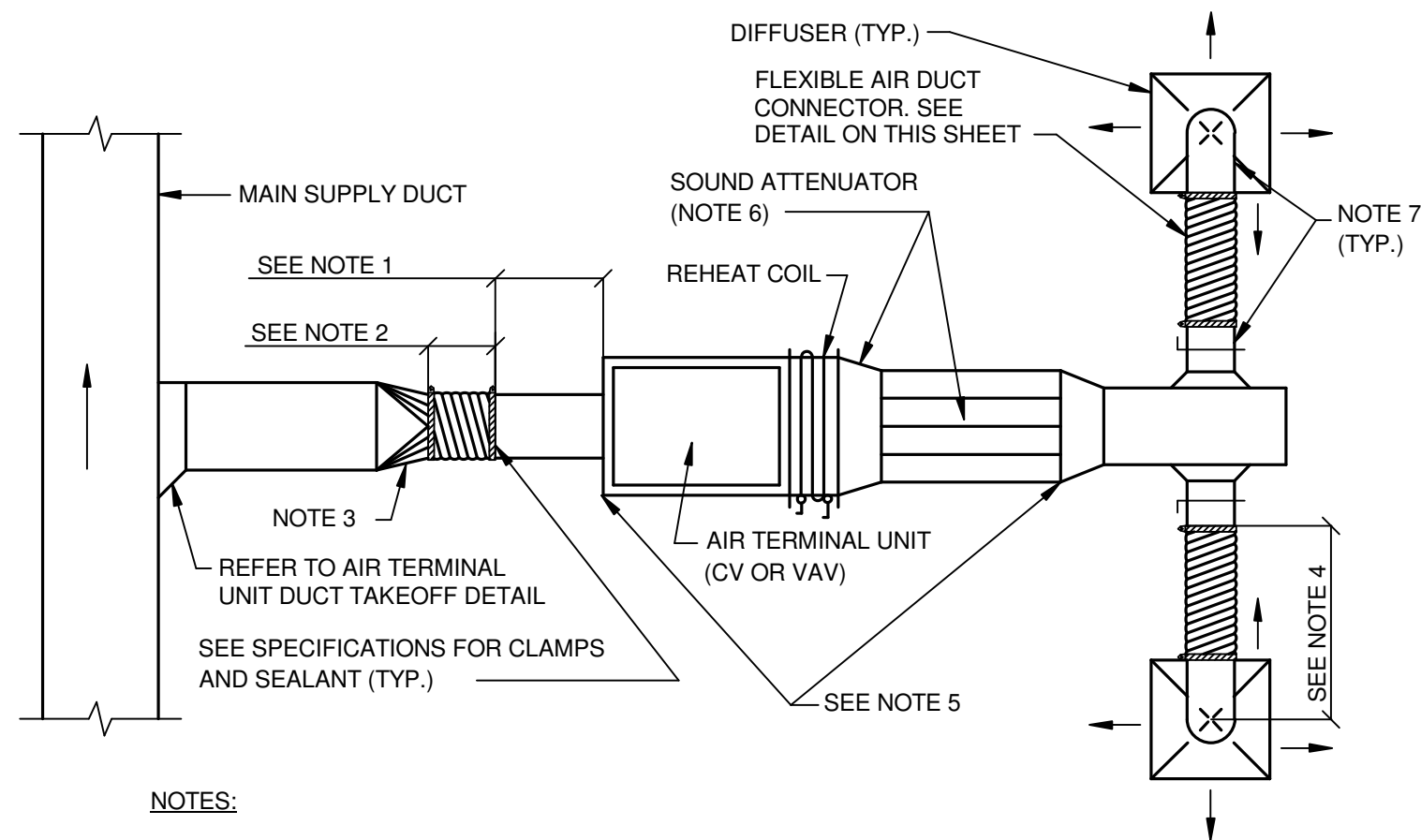
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Date	4/26/2013
Project No.	590-9111
RDC/JPA Project No.	11004.00
Drawing Number	137-M402
Dwg. 93	of 135

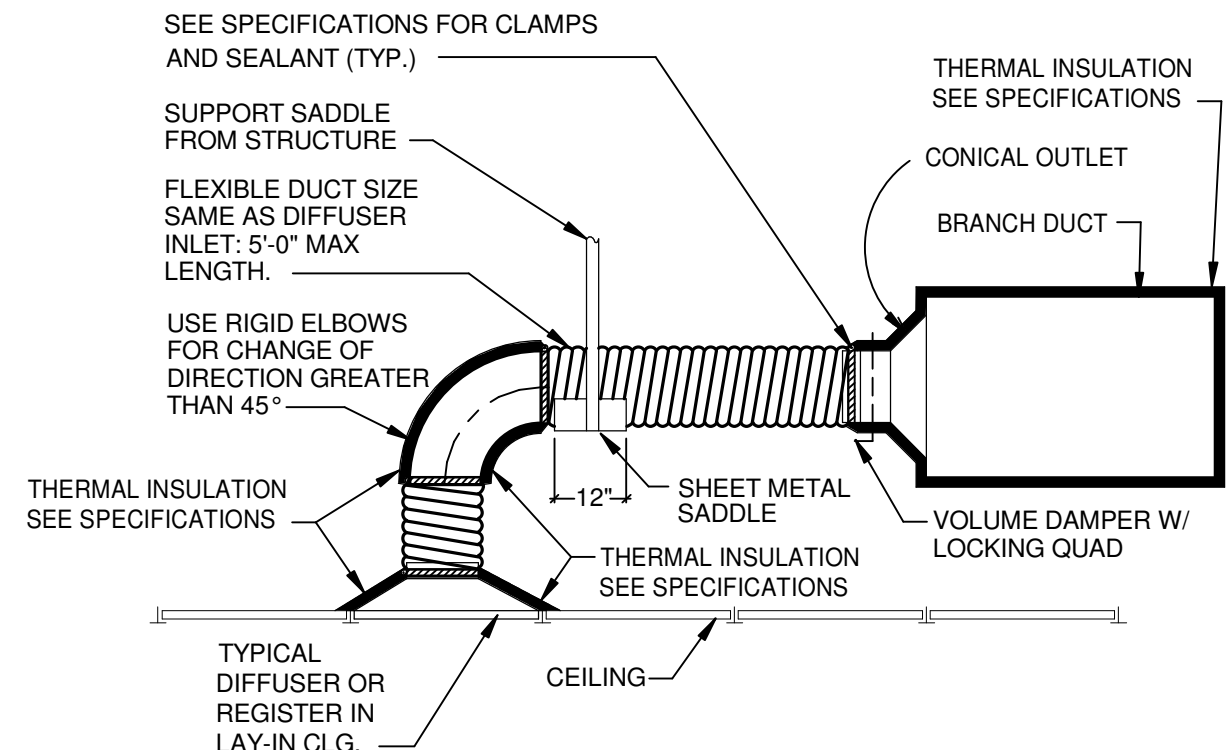




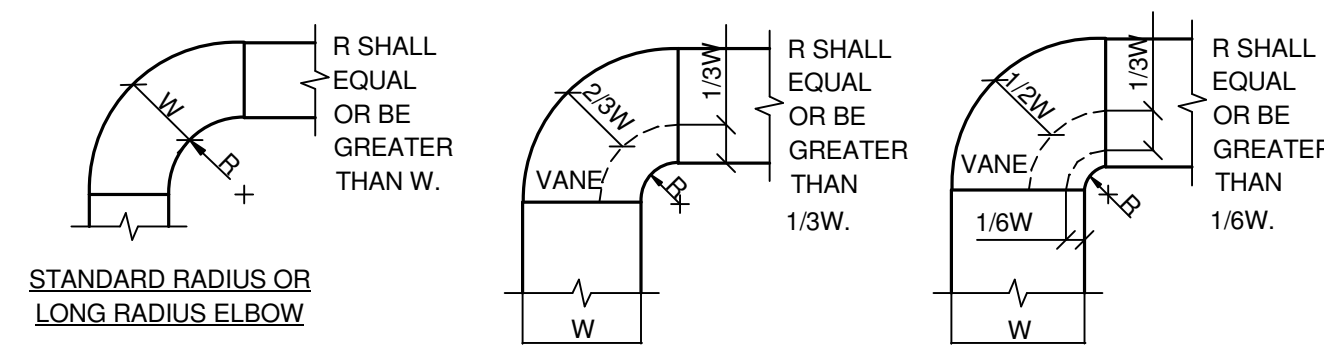
NOTES:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET SO AS TO ACHIEVE ACCURATE AIRFLOW SENSOR READINGS.
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'-0".
3. PROVIDE DUCT TRANSITION WHERE SCHEDULED DUCT RUNOUT SIZE TO UNIT IS DIFFERENT THAN TERMINAL UNIT INLET SIZE.
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. PROVIDE SOUND ATTENUATOR IF REQUIRED TO MEET DESIGN ROOM NC. PROVIDE DUCT TRANSITION BETWEEN TERMINAL UNIT AND SOUND ATTENUATOR WHERE ATTENUATOR SIZE DIFFERS FROM TERMINAL UNIT OUTLET SIZE.
7. DUCT RUNOUT TO DIFFUSERS SHALL BE SAME SIZE AS THE DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

DUCT CONNECTIONS-AIR TERMINAL UNITS



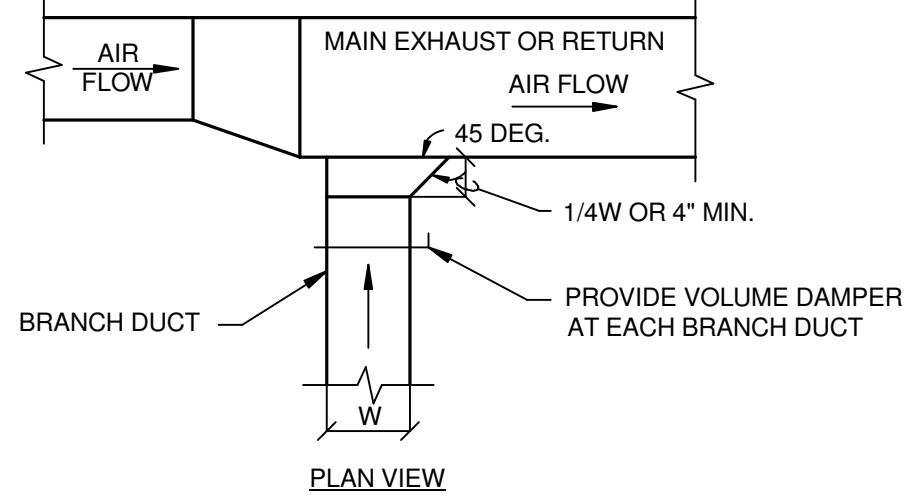
FLEXIBLE AIR DUCT CONNECTOR



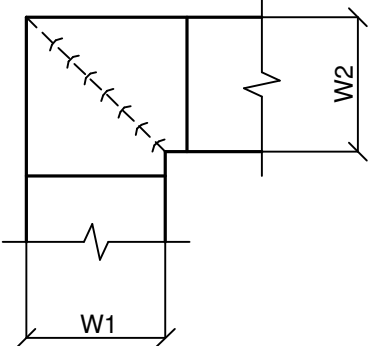
NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

DUCTWORK RADIUS ELBOWS



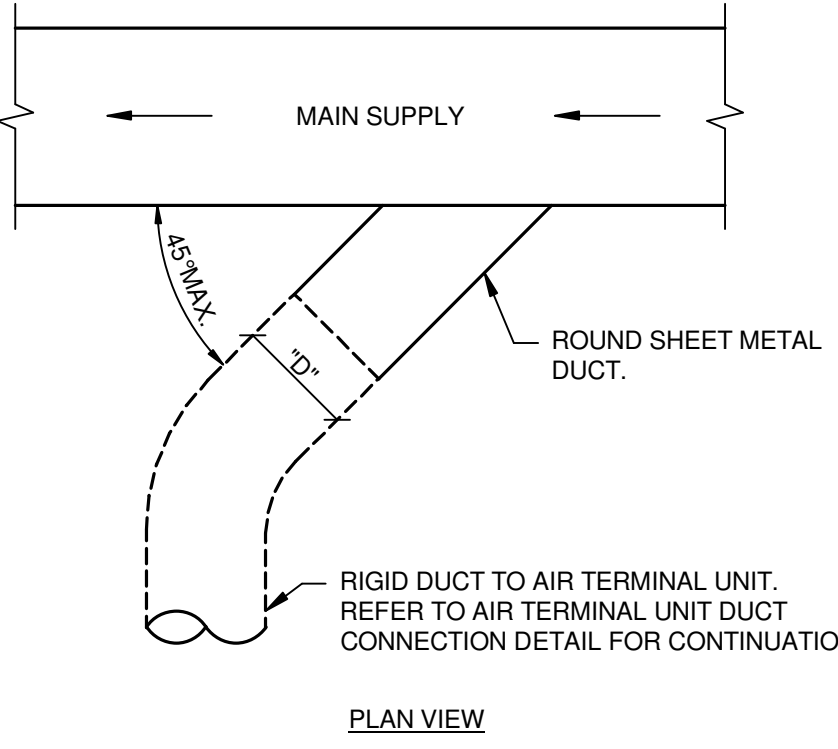
EXHAUST OR RETURN RANCH DUCTWORK



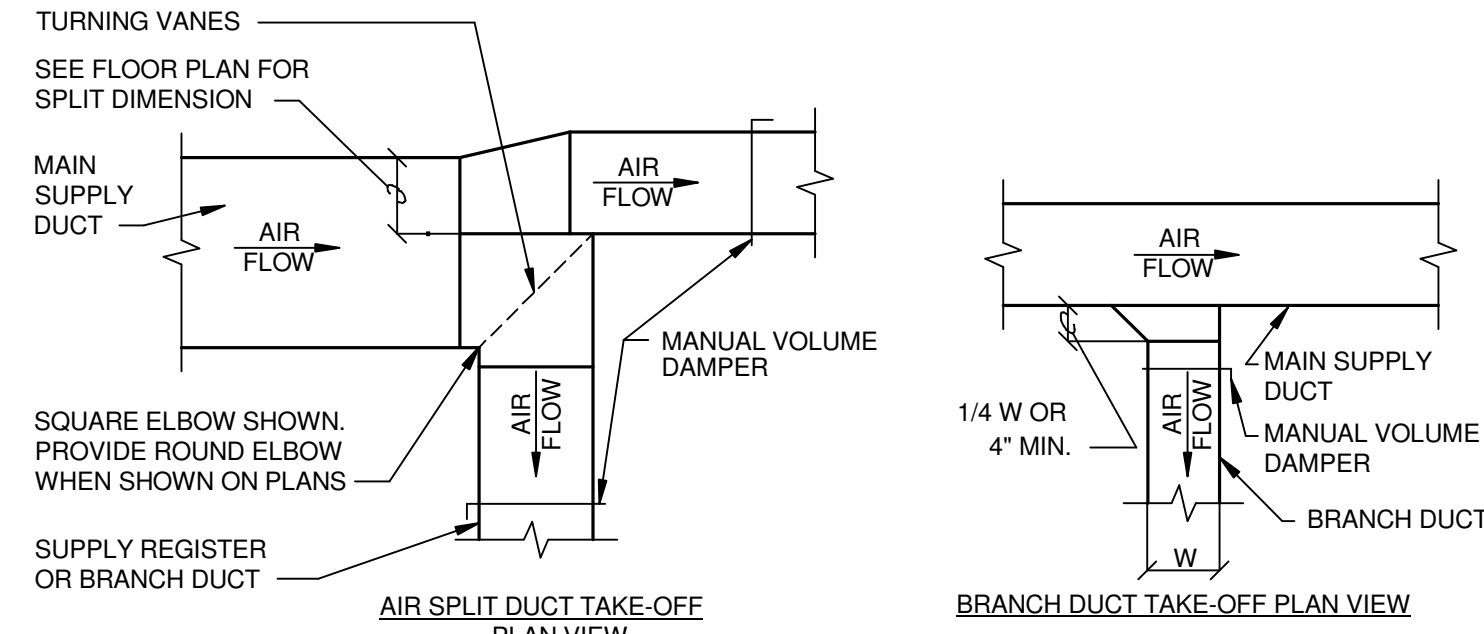
NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20", VANES SHALL BE DOUBLE VANE TYPE.

DUCTWORK SQUARE VANE ELBOWS

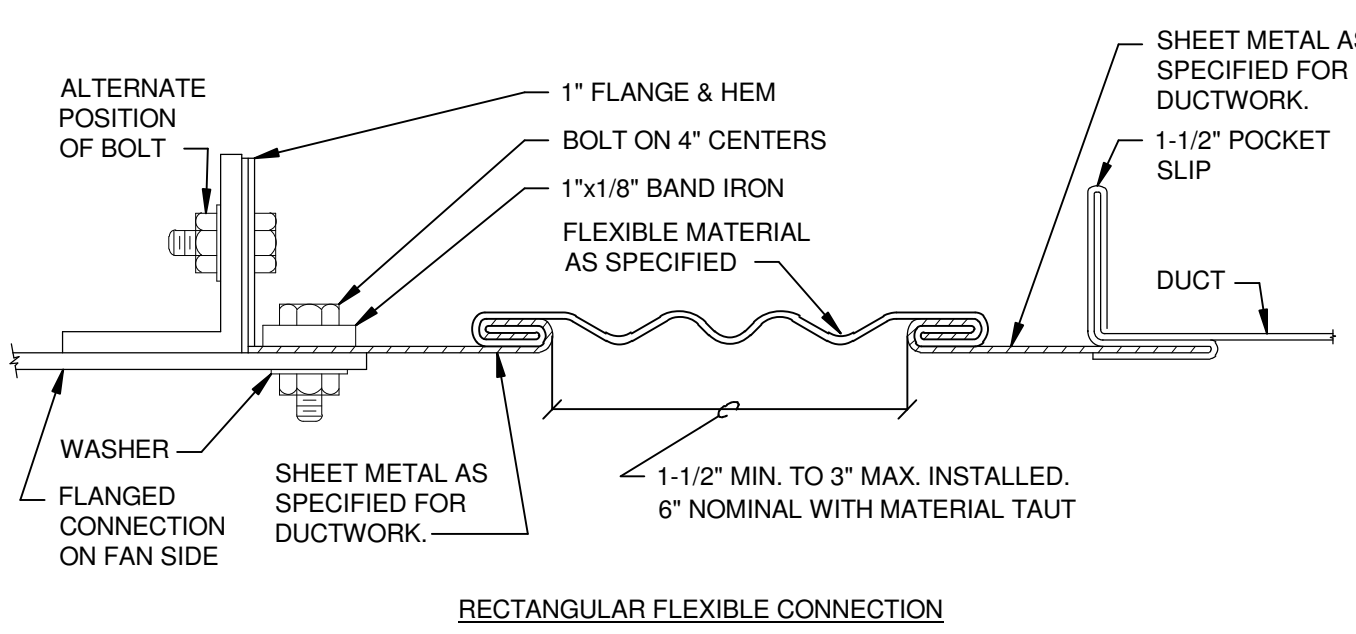


SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

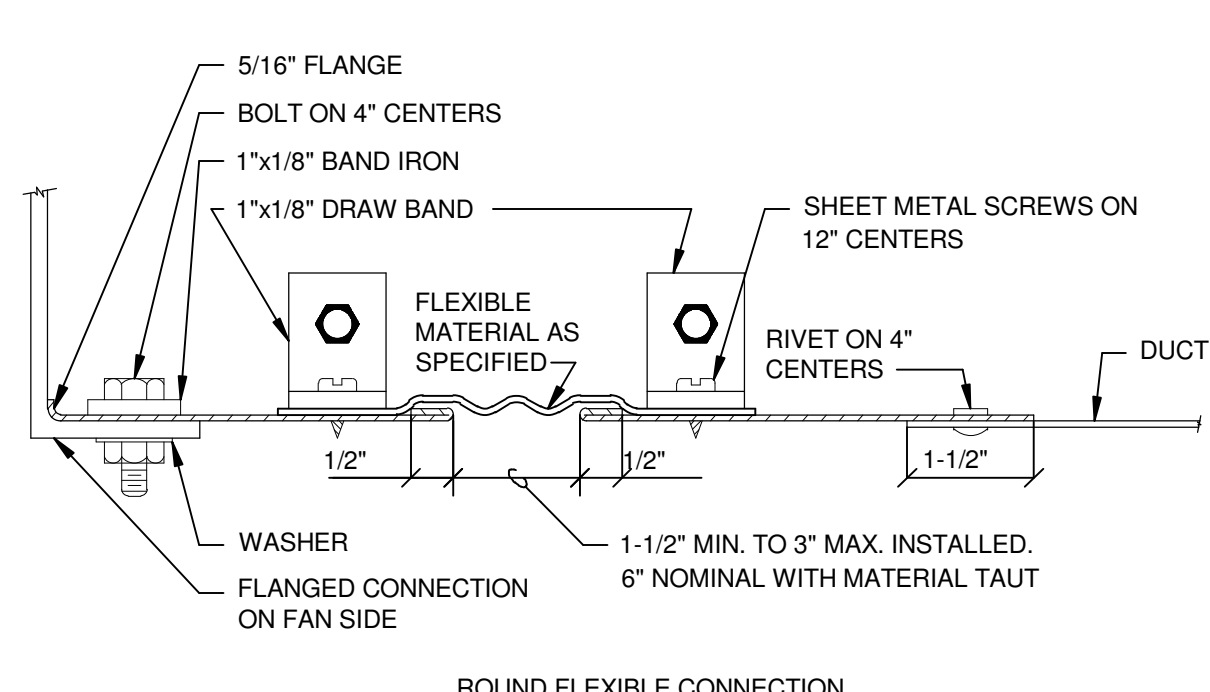


THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME, AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES

SUPPLY DUCTWORK TAKE-OFFS

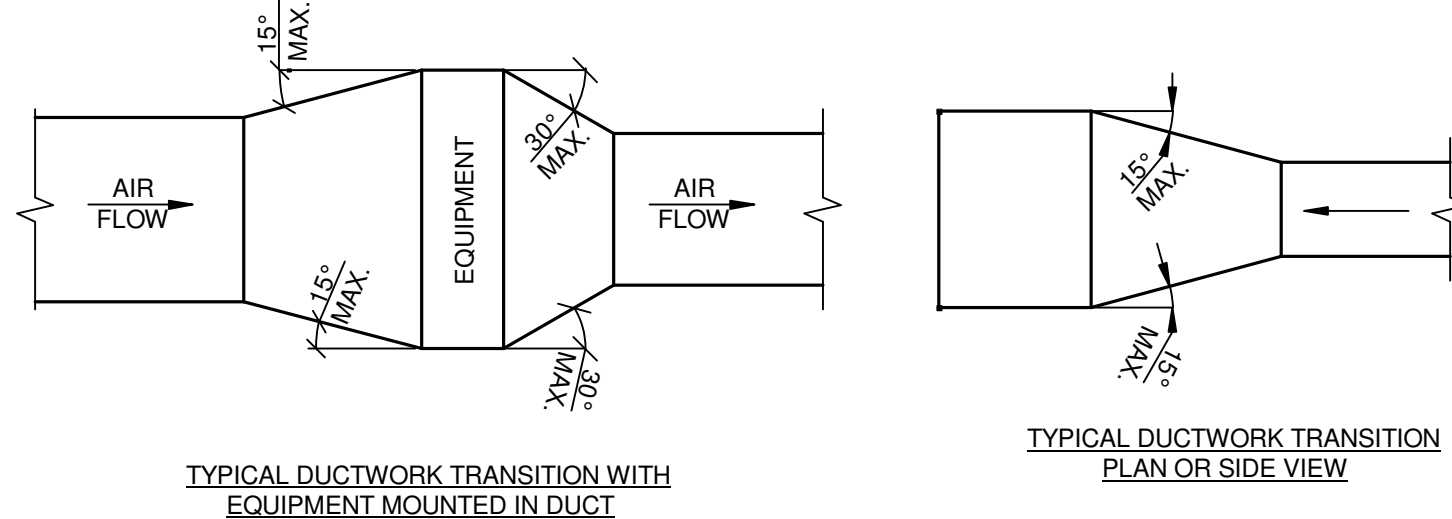


RECTANGULAR FLEXIBLE CONNECTION



ROUND FLEXIBLE CONNECTION

FLEXIBLE DUCT CONNECTIONS

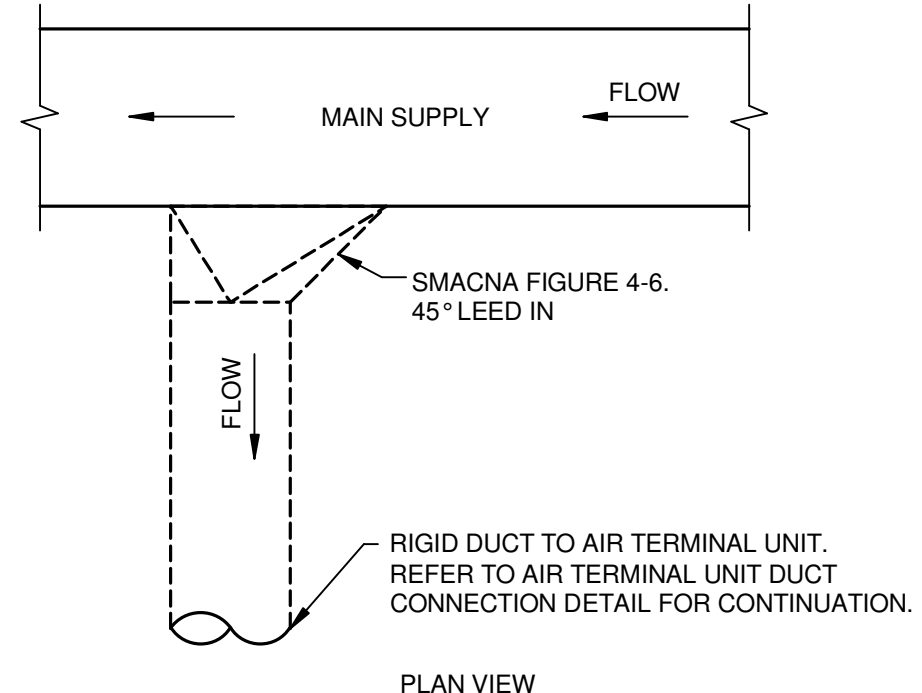


TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT

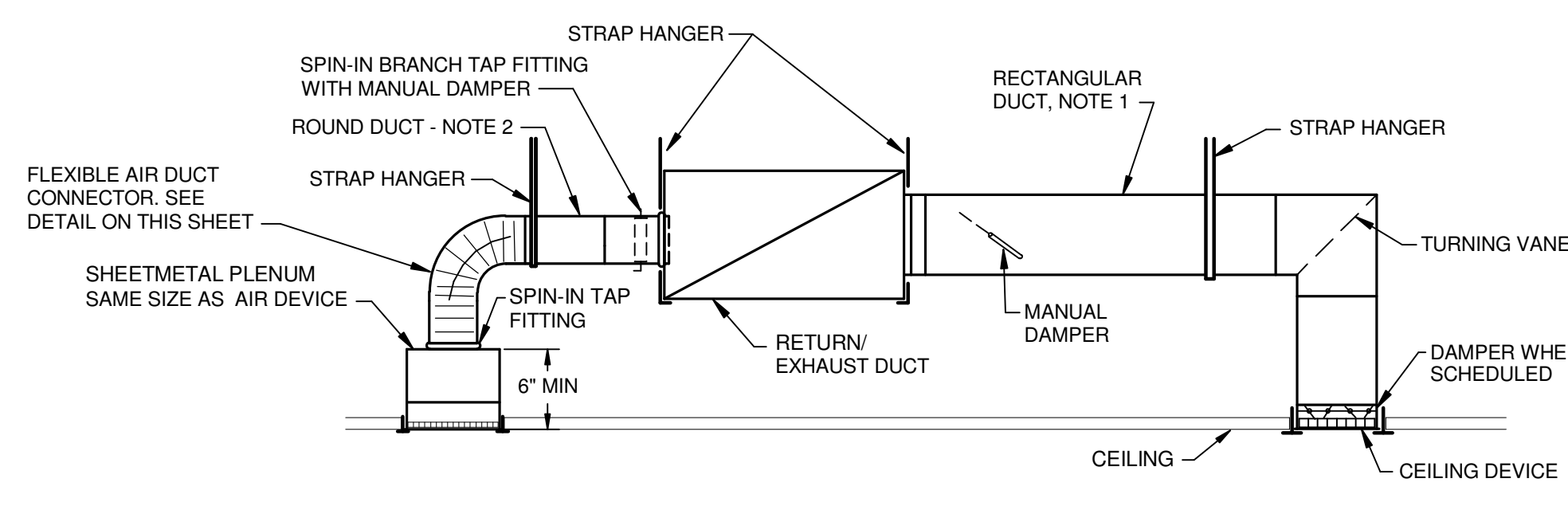
TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

NOTE: UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

DUCTWORK TRANSITIONS



ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS



NOTES:

1. BRANCH DUCT TAKE-OFF WITH MANUAL DAMPER.
2. BRANCH DUCT SIZES, UNLESS NOTED ON PLANS ARE TO BE SIZED AS FOLLOWS:
100 CFM AND LESS - 6" DIA.
101 CFM TO 250 CFM - 8" DIA.
251 CFM TO 400 CFM - 10" DIA.
401 CFM TO 700 CFM - 12" DIA.

RETURN OR EXHAUST GRILLE/REGISTER CONNECTION

Revisions	Date	CONSULTANTS:	ARCHITECT/ENGINEERS:	Drawing Title	Project Title	Date
		Heapy Engineering Mechanical Electrical Commissioning Technology Nationally Recognized Leader in Sustainability / LEED 1400 W Dorothy Lane, Dayton OH 45409-1310 Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com Heapy Project No.: 2011-04008	RDC/JOHN POE ARCHITECTS 524 FERNWOOD DRIVE ALTIMONTE SPRINGS, FLORIDA 32701 937 461 3290 PHONE 937 461 0260 FAX jpae@johnpoe.com	DETAILS	Hampton VA, VAMC Renovate / Expand SCI, Phase II, 590-911	4/26/2013
				Approved: Project Director	Building Number 137	Project No. 590-9111 RDC/UPA Project No.: 11004.00
					Location Hampton, VA.	Dwg. 94 of 135